

NOVEMBER 5.

ARTHUR ERWIN BROWN, D.Sc., Vice-President, in the Chair.

One hundred and eight persons present.

The death of Charles Mohr, M.D., a member, October 31, 1907, was announced.

Notes on Minerals.—MR. F. LYNWOOD GARRISON, exhibiting specimens, remarked that Nos. 1 and 2 were copper ore, composed of bornite, chalcopyrite in a hard, dense rock, determined microscopically to be a tuff. These ores occur near the town of San Christobal, in the island of Santo Domingo, West Indies. There are at this place two classes of copper deposits, one in veins or mineralized zones carrying quartz and running in a definite direction through the country rock (tuff). The other class is made up of segregations of chalcopyrite and limonite in the tuff, and mostly located near the contact of the tuff and the Cretaceous limestone. The two localities in which these different ores occur are about a mile apart. A description of these deposits with a scientific dissertation thereon was published in the *Mining and Scientific Press* of San Francisco, September 7, 1907, page 305.

No. 3. Molybdenite with chalcocite and chalcopyrite, from the Wallapi Mountains, Mojave Co., Arizona. The association of copper ores with a relatively large proportion of molybdenite is exceedingly rare. Molybdenite and copper minerals are sometimes found associated together in gneiss, as for example at the Frankford quarries near Philadelphia, but the combination of the two minerals in sufficient amount to constitute an ore is, as far as he knew, unique. The country rock containing these deposits is granite, probably not younger than the Tertiary period. The district in which they occur is unexplored in a geological sense, and was visited during July, 1907, by his assistant engineer, Mr. William F. Ward. He hoped to have the opportunity at a future time to examine this deposit and prepare a more elaborate description of it. As a commercial matter it is highly desirable to separate the molybdenum from the copper minerals, but as yet all attempts to do this have been unsuccessful. The molybdenum itself would bring a high price for use in making special steel, since it is found to be more efficient for that purpose than tungsten, chromium or manganese. The practical commercial problem involved in this proposition is to successfully separate the molybdenum from the copper minerals, as the presence of one would vitiate the other for use in the arts. It is to be hoped that at some future time this can be successfully accomplished.

No. 4. Zinc blende from Joplin, Missouri, coated with greenockite (cadmium sulphide) and marcasite (FeS_2) and some small crystals of calcite. These minerals are all associated with and deposited upon the dark blue flint which is characteristic of the Joplin lead and zinc deposits. This flint is of secondary origin and obtains its blue color from association with the black muck derived from the coal shales that once overlaid the ore deposits, but now almost entirely removed by erosion. The paragenesis of these minerals is well illustrated in this specimen: first we have the large zinc blende (sphalerite) crystals, upon them the marcasite and then the greenockite; finally the small, almost microscopic crystals of calcite, one laid down upon the other in orderly succession. There is another mineral deposited upon the flint at the base of the large sphalerite crystals, but as yet he had been unable to determine its name. It is fibrous, resembling asbestos or some of the zeolites, and microscopic in size.

Nos. 5 and 6. Two pseudomorphs, one of sphalerite and the other calamine, after fossils. These minerals were found some seven or eight years ago in a certain mine of the Joplin district. He believed them to be quite rare, for he had never seen but one or two others of a similar kind and they were from the same deposit. The particular fossil which has been replaced by the zinc minerals is a coral, one of the Zaphrentis.

No. 7. An interesting fossil from the zinc deposits near Springfield, Missouri. It is one of the Brachiopoda (a *Spirifer*). On its lower edge is a beautiful nearly perfect dodecahedral crystal of sphalerite, the association of the two constituting an interesting specimen.

No. 8. An association of pink crystallized dolomite with barite (BaSO_4) and sphalerite. Barite is rather rare in the Joplin district, but very common in other parts of Missouri, notably in the lead district of the southeast.

DR. HENRY SKINNER made a communication on the scientific results of a visit to Saskatchewan made by him last summer. (No abstract.)

The following was adopted:

The Academy having heard with profound regret of the death of PROF. ANGELO HEILPRIN on the 17th of last July, desires to put on record an expression of its sense of the loss which science has thereby sustained and of its appreciation of the work accomplished by him as a student, administrator and explorer during the years of his connection with the society from 1879 until within a few weeks of the termination of his life.

The Academy considers it a cause of congratulation that much of the work accomplished by Prof. Heilprin during those years was materially forwarded by the resources of the library and museum and by the encouragement of his colleagues. It desires to express to his relatives its sincere sympathy in the bereavement they have sustained.